

## Title (en)

REAL-TIME MONITORING AND CONTROL OF HIFU THERAPY IN MULTIPLE DIMENSIONS

## Title (de)

ECHTZEITÜBERWACHUNG UND -STEUERUNG EINER HIFU-THERAPIE IN MEHREREN DIMENSIONEN

## Title (fr)

CONTRÔLE ET COMMANDE EN TEMPS RÉEL D'UNE THÉRAPIE PAR HIFU EN DIMENSIONS MULTIPLES

## Publication

**EP 2585170 A1 20130501 (EN)**

## Application

**EP 11724773 A 20110427**

## Priority

- US 35815810 P 20100624
- IB 2011051855 W 20110427

## Abstract (en)

[origin: WO2011161559A1] Energy is transferred (336) to cause a mechanical property of biological tissue to change, as in ablation. An effect of the transferring is examined in more than one spatial dimension to, for example, make an ablation halting decision for a treatment region, i.e., line (312) or layer (314), or for a location (316) within the region. Halting decisions can be based on lesion-central and/or lesion-peripheral longitudinal displacement of treated tissue evaluated in real time against a characteristic curve. Steering in the azimuthal and/or elevation direction is afforded by, for example, linear, or 2D, multi-channel ultrasound arrays for therapy and imaging. Protocols includable are region-wide scanning (SI 010) and location-by-location completion for both (HIFU) therapy and tracking (acoustic-radiation-forced-based) displacement of treated tissue. Fine, location-to-location monitoring can be used for relatively inhomogeneous tissue; whereas, quicker, sparser and more generalized monitoring (1 100, 1200) can be employed for relatively homogeneous tissue.

## IPC 8 full level

**A61N 7/02** (2006.01); **A61B 8/00** (2006.01)

## CPC (source: EP US)

**A61B 8/4488** (2013.01 - EP US); **A61N 7/00** (2013.01 - US); **A61N 7/02** (2013.01 - EP US); **A61B 8/485** (2013.01 - EP US); **A61B 2090/378** (2016.02 - EP US); **A61N 2007/0052** (2013.01 - EP US); **A61N 2007/0082** (2013.01 - EP US); **A61N 2007/0095** (2013.01 - EP US)

## Citation (search report)

See references of WO 2011161559A1

## Citation (examination)

- WO 2008141220 A1 20081120 - UNIV ROCHESTER [US], et al
- TANTER M ET AL: "Quantitative Assessment of Breast Lesion Viscoelasticity: Initial Clinical Results Using Supersonic Shear Imaging", ULTRASOUND IN MEDICINE AND BIOLOGY, NEW YORK, NY, US, vol. 34, no. 9, 1 September 2008 (2008-09-01), pages 1373 - 1386, XP025400638, ISSN: 0301-5629, [retrieved on 20080408], DOI: 10.1016/J.ULTRASMEDBIO.2008.02.002

## Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

## DOCDB simple family (publication)

**WO 2011161559 A1 20111229**; CN 102958565 A 20130306; CN 102958565 B 20160120; EP 2585170 A1 20130501; JP 2013529492 A 20130722; JP 5759540 B2 20150805; RU 2013103058 A 20140727; RU 2579737 C2 20160410; US 2013096597 A1 20130418

## DOCDB simple family (application)

**IB 2011051855 W 20110427**; CN 201180030723 A 20110427; EP 11724773 A 20110427; JP 2013515995 A 20110427; RU 2013103058 A 20110427; US 201113805396 A 20110427